

## CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

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1. A bushing for conducting and insulating electricity comprising:  
a core;  
a flange securely fastened to said core; and  
a housing permanently fastened directly to said core.

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2. A bushing according to claim 1 wherein:  
said housing is one unitary piece, having a top end and bottom end, and is permanently fastened directly to said core, continuously from the top of said housing to the bottom of said housing.

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3. A bushing according to claim 2 wherein:  
said housing is comprised of silicone-rubber.

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4. A bushing according to claim 1 wherein:  
said core consists of a stud with resin-impregnated paper-foil matrix wound around said stud for increased capacitance-grading.

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5. A bushing according to claim 4 wherein:  
said resin-impregnated paper-foil matrix further comprising a plurality of crepe paper and foil matrix layers wound around said stud; and  
an epoxy resin encapsulating said plurality of crepe paper and foil matrix layers.

6. A bushing according to claim 5 wherein:  
said foil matrix is selected from a group consisting of a metal, a conductive ink, or  
a conductive element paper.
- 5 7. A bushing for conducting and insulating electricity according to claim 1 wherein:  
said flange is further comprised of a power factor test tap for testing the power  
factor of said apparatus bushing; and  
said power factor test tap is connected to said core by an electrical wire.
- 10 8. A bushing for conducting and insulating electricity according to claim 1 wherein:  
said core has at least one recess for physically - mechanically attaching said  
housing to said core.
9. A bushing for conducting and insulating electricity according to claim 1 wherein:  
15 said flange is further comprised of a power factor test tap for testing the power  
factor of said bushing; and  
said power factor test tap is connected to an end of an electrical wire, and the  
other end of said electrical wire is connected to said core.
- 20 10. An apparatus bushing for conducting and insulating electricity comprising:  
a core  
a flange adapted for receiving said core, where said flange is permanently bonded  
to said core; and  
a housing directly bonded to said core.

11. An apparatus bushing for conducting and insulating electricity according to claim  
10 wherein:

said housing is of unitary construction, having a top end and a bottom end, and is  
permanently molded to said core.

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12. An apparatus bushing for conducting and insulating electricity according to claim  
11 wherein:

said housing is a rubber housing.

10 13. An apparatus bushing for conducting and insulating electricity according to claim  
11 wherein:

said housing is comprised of silicone-rubber.

14. An apparatus bushing for conducting and insulating electricity according to claim  
15 10 wherein:

said core is comprised of a stud around which a plurality of resin-impregnated  
crepe paper and foil matrix layers are wound.

15. An apparatus bushing for conducting and insulating electricity according to claim  
20 10 wherein:

said foil matrix is selected from a group consisting of a metal, a conductive ink, or  
a conductive element paper.

16. An apparatus bushing for conducting and insulating electricity according to claim  
25 10 wherein:

said core has at least one recess for physically-mechanically attaching said  
housing to said cord.

17. An apparatus bushing for conducting and insulating electricity according to claim  
10 wherein:

said flange is further comprised of a power factor test tap for testing the power  
factor of said apparatus bushing; and

5 said power factor test tap is connected to an end of an electrical wire, and the  
other end of said electrical wire is connected to said core.

18. A bushing comprising:

a core for conducting and insulating electricity comprising a stud and a plurality of  
10 crepe paper and foil matrix layers wound around said stud and impregnated with epoxy  
resin;

a flange securely fastened to said core; and

a silicone-rubber housing of unitary construction, having a top and a bottom end;

said silicon-rubber housing being permanently bonded directly to said core  
15 continuously from the top of said housing to the bottom of said housing.

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19. A bushing produced according to the process of:

Forming a core by securing a plurality of crepe paper and foil matrix layers to a stud;

Drying of said core to remove moisture;

5 Impregnating said core with an epoxy resin;

Machining of said core to finished dimensions;

Sealing the surface of said core with a polyurethane;

Bonding a flange to said core with an adhesive; and

Applying to the surface of said core a bonding primer; and

10 Molding a one piece housing directly to the surface of said core.